

**CLAIMS**

1. An IF counting method of an IF counter for counting IF signals for a prescribed time period, comprising:
  - 5 upper limit presetting step for providing a desired upper limit of a count value as an initial value at the time of count commencement;
  - IF count time period determination step for determining a time period during which the IF signals  
10 are counted;
  - countdown IF counting step for counting down the initial value preset of the upper limit presetting step for the time period determined in the IF count time period determination step, by a count value of the IF  
15 signals;
  - IF count upper/lower limit difference presetting step for providing information about a difference between desired upper and lower limits of the count value;
  - 20 comparison step for comparing the information about the difference between the IF count upper/lower limit values provided in the IF count upper/lower limit difference presetting step with first information based on count information of the countdown IF counting step;
  - 25 and

determination step for determining whether the count value is between the desired upper and lower limits, according to second information based on the count information of the countdown IF counting step and a  
5 result of the comparison step.

2. The IF counting method according to claim 1, wherein

the said first information is the lower-order  $m$   
10 bits of count information composed of  $(n + 1)$  bits in the said countdown IF counting step and the said second information is the higher-order  $(n+1-m)$  bits of the count information, where each of integers  $m$  and  $n$  is more than 1 and  $n > m$ .

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3. The IF counting method according to claim 1, wherein

the frequency of each of the IF signals is divided by selectively using one of frequency division ratios  
20 out of  $1/2$ ,  $1/4$ ,  $1/8$ ,  $1/16$  and  $1/32$ .

4. An IF counting method for an IF counter for counting IF signals for a prescribed time period, comprising:

25 upper limit presetting step for providing a

desired upper limit of a count value as an initial value  
at the time of count commencement;

IF count time period determination step for  
determining a time period during which IF signals are  
5 counted;

countdown IF counting step for counting down the  
initial value set in the upper limit presetting step  
for the time period determined by the IF count time  
period determination step according to the count value  
10 of the IF signals; and

determination step for determining whether the  
count value is between the desired upper and lower limits,  
according to the first and second information based on  
the count information of the countdown IF counting step.

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5. An IF counter for counting IF signals for a  
prescribed time period, comprising:

an upper limit presetting unit for providing a  
desired upper limit of a count value as an initial value  
20 at the time of count commencement;

an IF count time period determination unit for  
determining a time period during which the IF signals  
are counted;

a countdown IF counting unit for counting down an  
25 initial value set in the upper limit presetting unit

for the time period determined by the IF count time period determination unit according to the count value of the IF signals;

5        an IF count upper/lower limit difference presetting unit for providing information about a difference between the desired upper and lower limits of the count value;

10       a comparison unit for comparing the information about the difference between the preset value in the IF count upper/lower limit difference presetting unit with first information based on the count information of the countdown IF counting unit; and

15       a determination unit for determining whether the count value is between the desired upper and lower limits, according to second information based on the count information of the countdown IF counting unit and a result of the comparison unit.

20       6.       An IF counter for counting IF signals for a prescribed time period, comprising:

      an upper limit presetting unit for providing a desired upper limit of a count value as an initial value at the time of count commencement;

25       an IF count time period determination unit for determining a time period during which the IF signals

are counted;

5       a countdown IF counting unit for counting down the  
initial value set in the upper limit presetting unit  
for the time period determined by the IF count time  
period determination unit according to the count value  
of the IF signals; and

10       a determination unit for determining whether the  
count value is between the desired upper and lower limits,  
according to the first and second information based on  
the count information of the countdown IF counting unit.